

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2021 Region Bridge Seal	1	16

Plotting Date: 03/05/2021

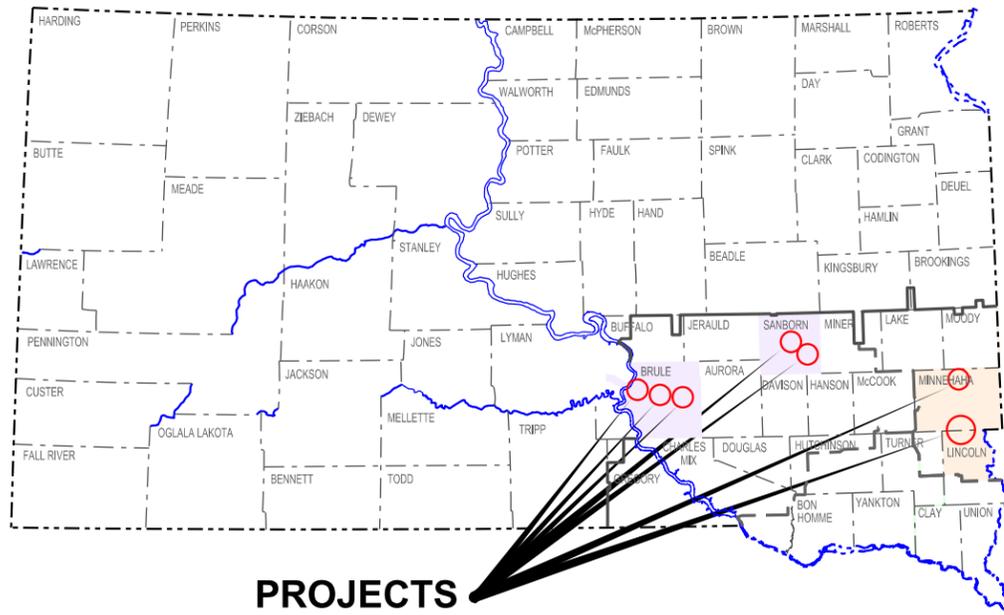
INDEX OF SHEETS

Sheet 1	Title Sheet
Sheets 2 thru 6	Layout Maps
Sheets 7 thru 12	Estimate of Quantities & Notes
Sheets 13 thru 16	Standard Plates

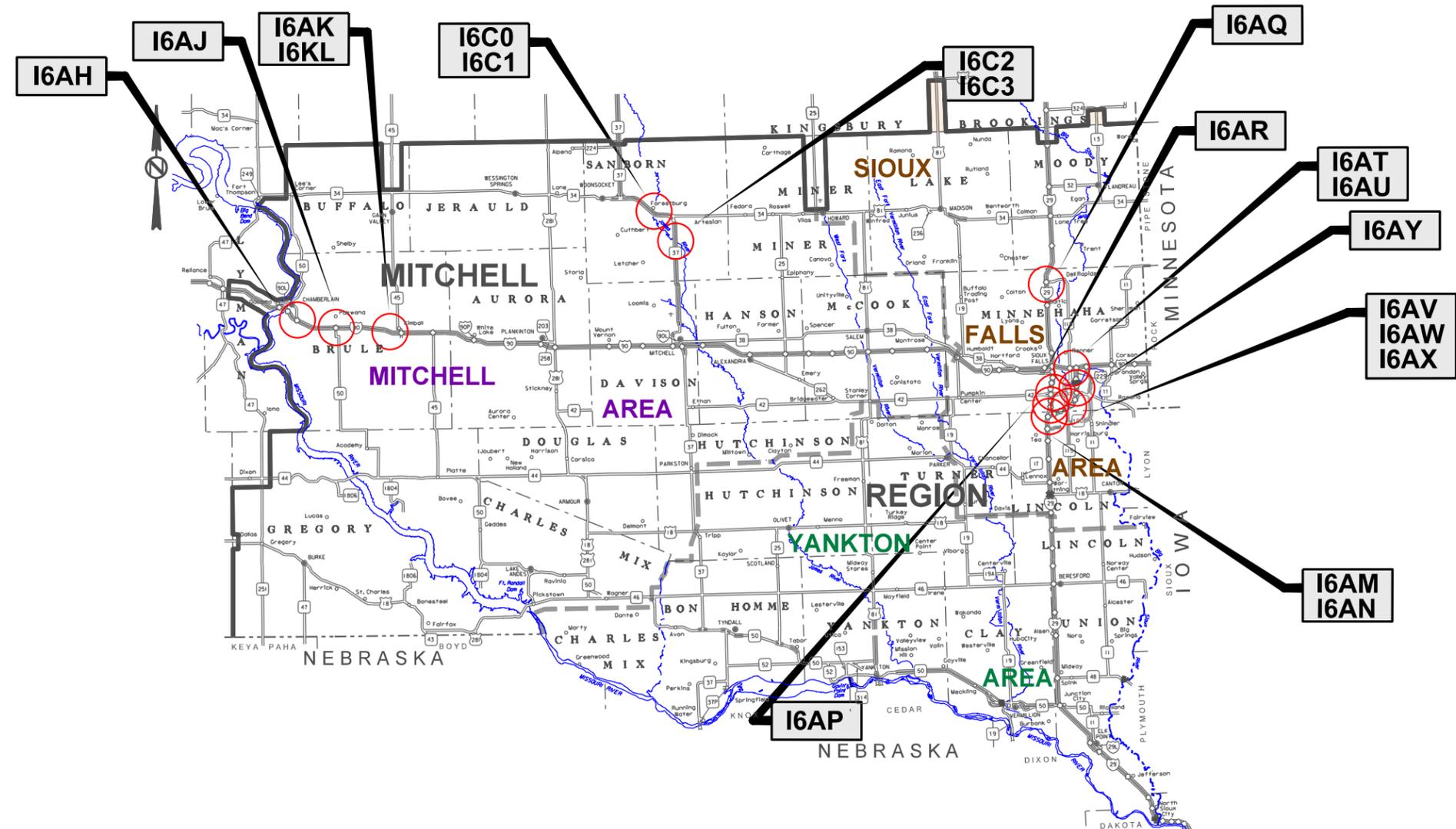
PLANS FOR PROPOSED
**PROJECTS 029N-288,
029S-288 090E-288, 090W-288,
229N-288, 229S-288, 034E-288, 034W-288,
037N-288, 037S-288, 050-288, 115-288**

INTERSTATES 29, 90 & 229,
SD HIGHWAYS 34,37, 50 & 115,
6th STREET, 12th STREET, 57th STREET & W. MAPLE STREET
BRULE, SANBORN, MINNEHAHA & LINCOLN COUNTIES

CONCRETE PENETRATING SEALER ON BRIDGE DECKS
PCN I6AQ, I6AR, I6AP, I6AM, I6AN, I6AH, I6AJ, I6AK, I6AL, I6AT, I6AU, I6AV, I6AW, I6AX, I6AY, I6C0, I6C1, I6C2, I6C3



PROJECTS



SD50 ADT (2019) 3,652

SD50 ADT (2019) 316

I90W ADT (2019) 3,795

I90E ADT (2019) 3,795

I29S ADT (2019) 25,510

I29N ADT (2019) 25,510

SD115 ADT (2019) 3,668

I90W ADT (2019) 11,465

I90E ADT (2019) 11,465

I229S ADT (2019) 18,385

I229N ADT (2019) 18,385

SD34W ADT (2019) 1,164

SD34E ADT (2019) 1,164

SD37S ADT (2019) 1,285

SD37N ADT (2019) 1,285

STORM WATER PERMIT
(None required)

PLOT SCALE - 1" = 7000'

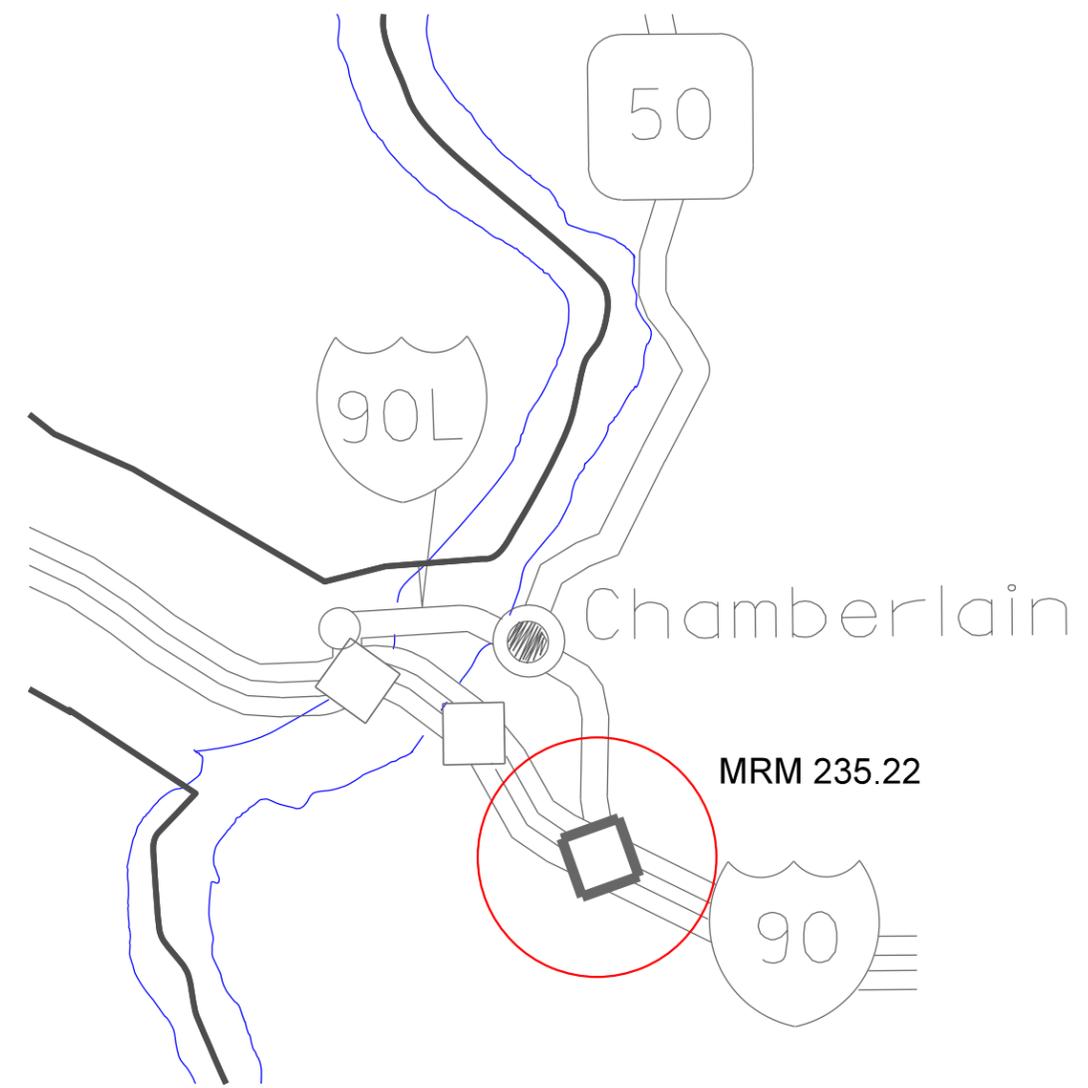
PLOTTED FROM - TRM111119

PLOT NAME - 1
FILE - ... \PRJ\SI.LANE 2021\TITLE\I6AH.DGN

Plotting Date: 03/05/2021

PLOT SCALE - 1:7000

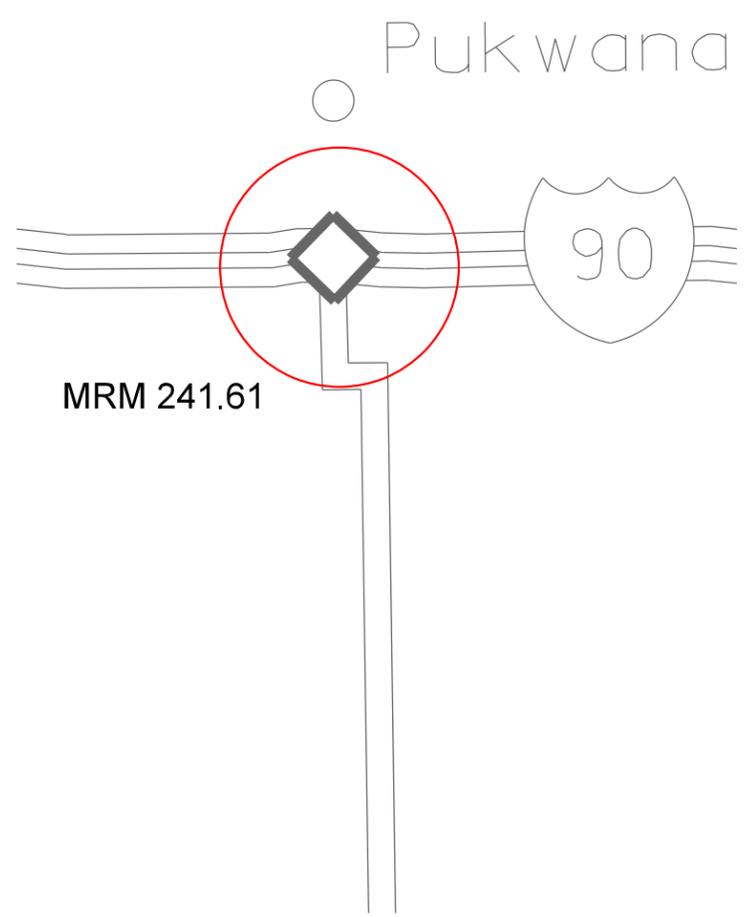
PLOT NAME - 2



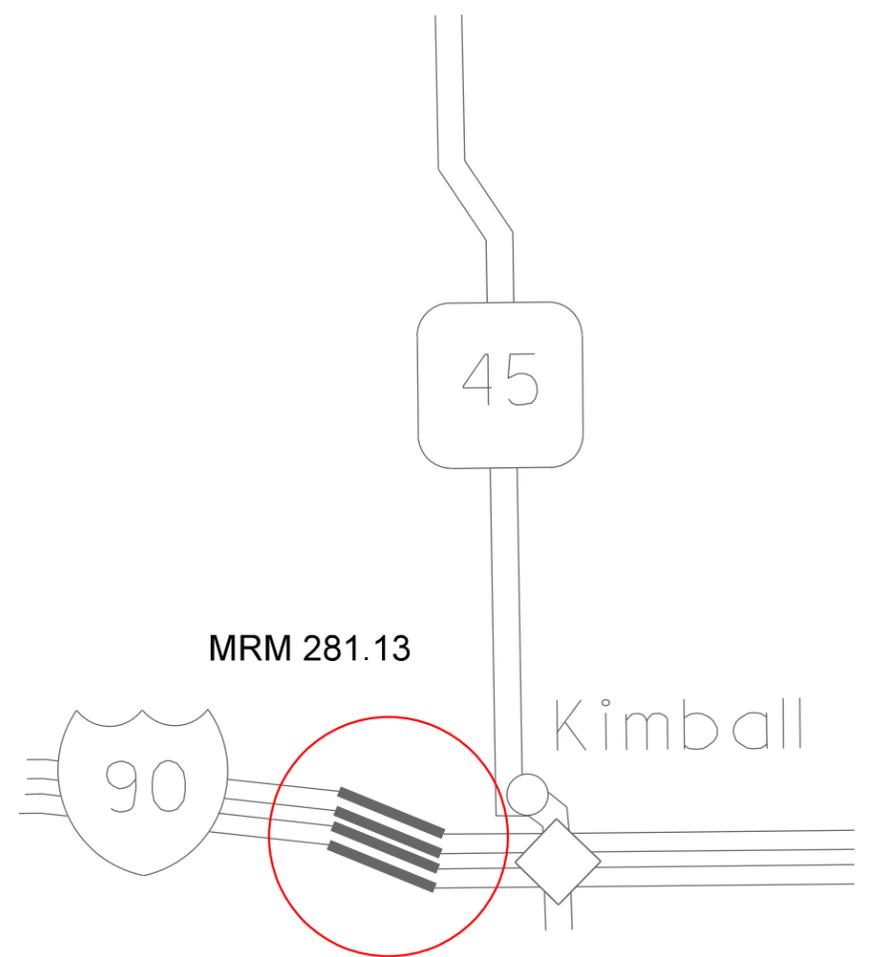
MRM 235.22

050-288
PCN I6AH

050-288
PCN I6AJ



MRM 241.61



MRM 281.13

090E-288
090W-288
PCN I6AL & I6AK

PLOTTED FROM - TRM111119

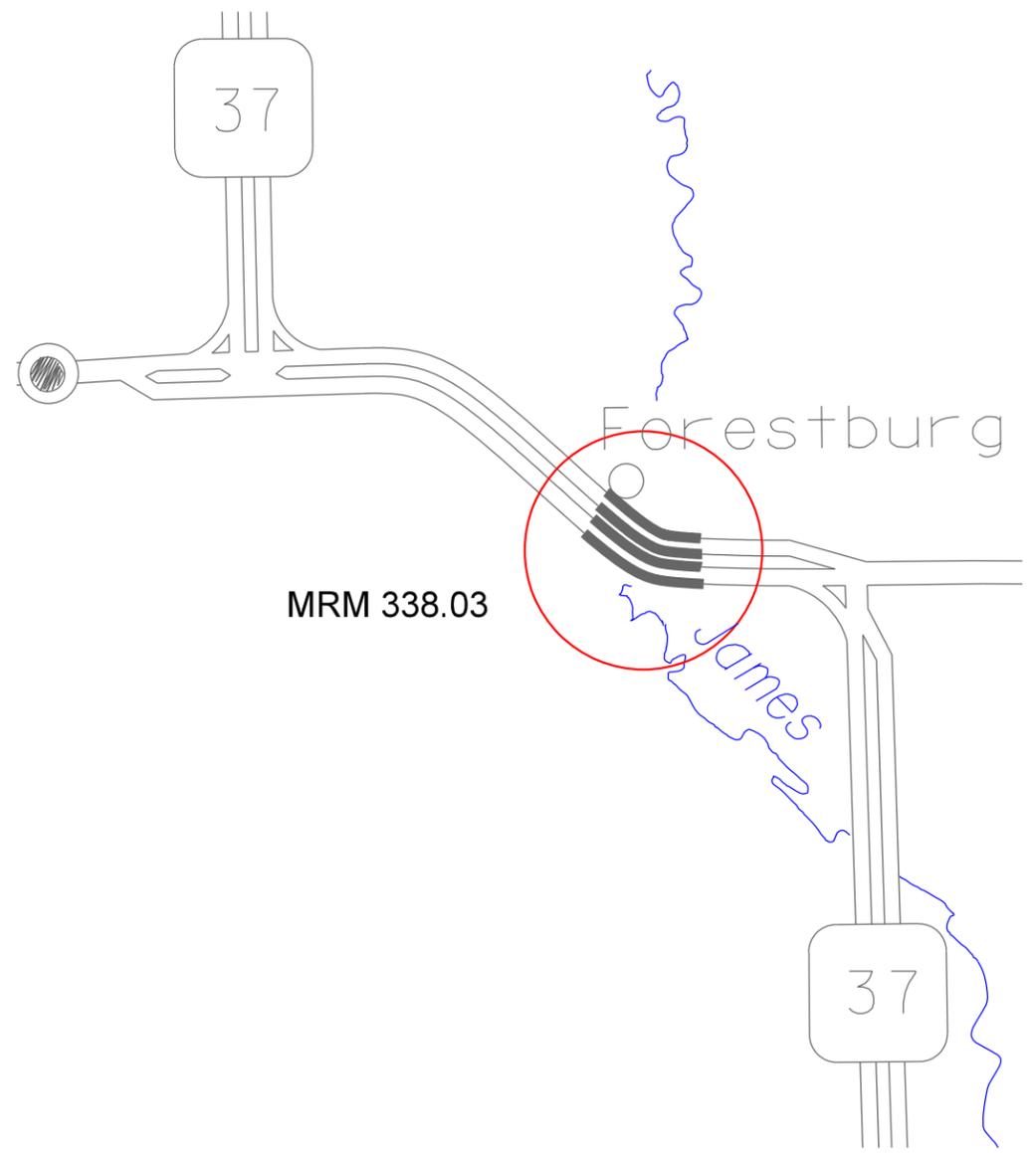
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Plotting Date: 03/05/2021

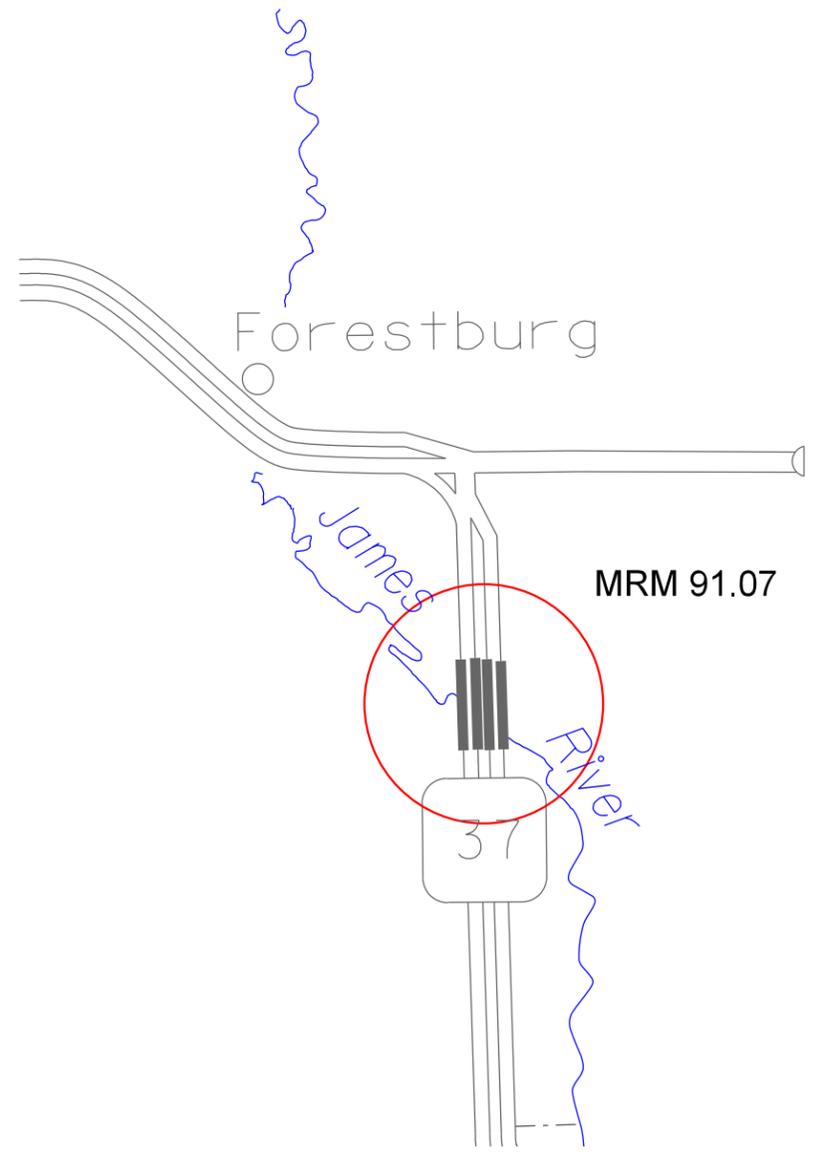
PLOT SCALE - 1:7000

PLOT NAME - 3

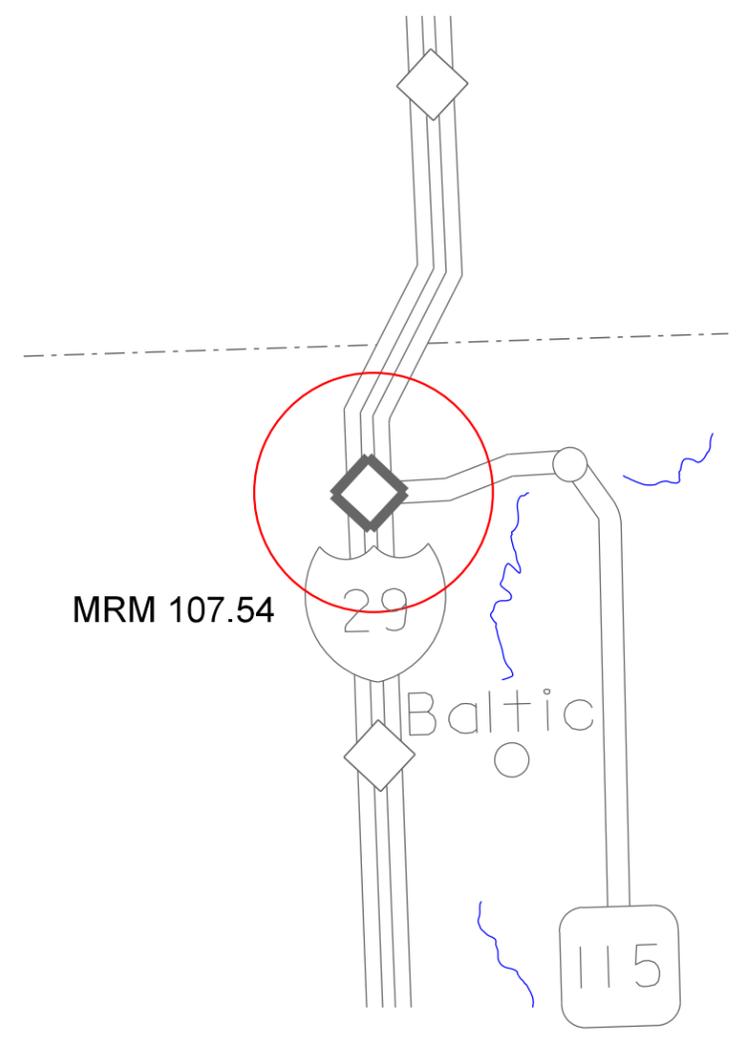
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034E-288
034W-288
PCN I6C1 & I6C0



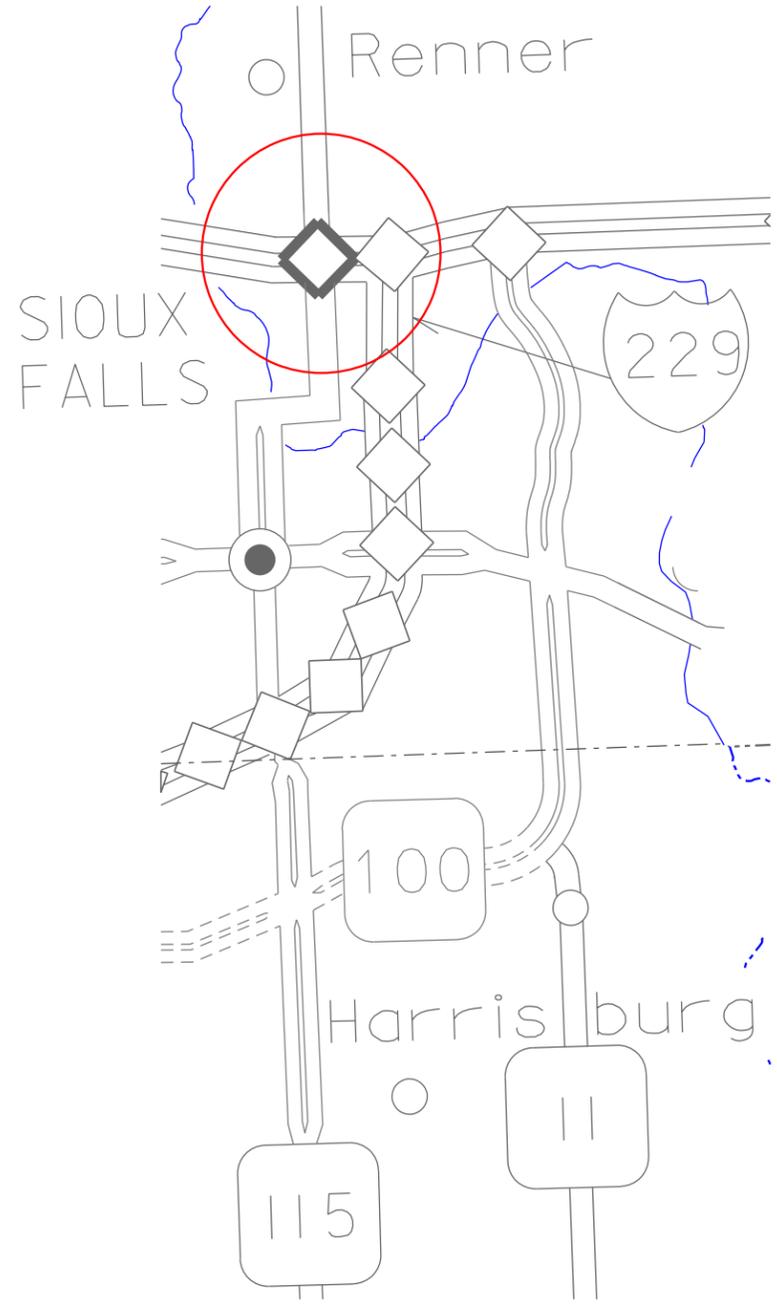
037N-288
037S-288
PCN I6C3 & I6C2



0115-288
PCN I6AQ

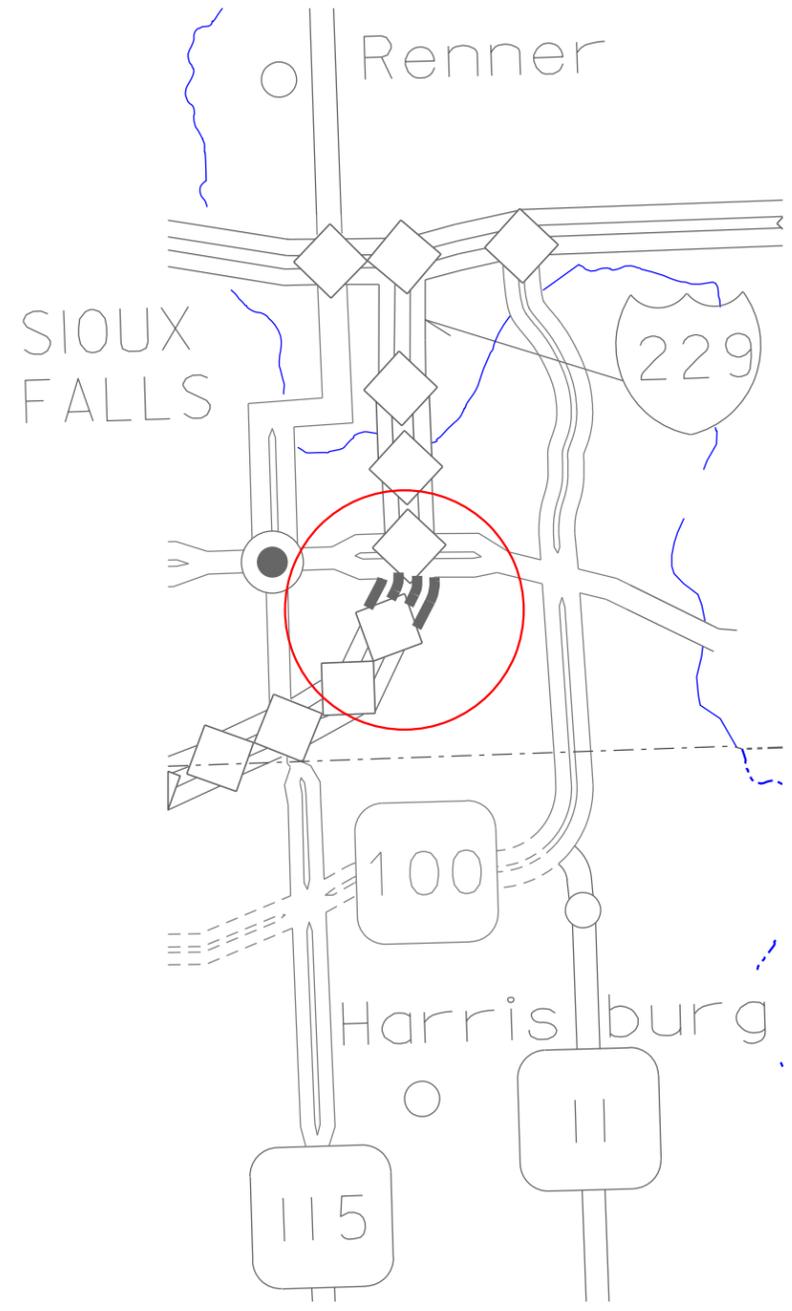
PLOTTED FROM - TRM111119

**090E-288
090W-288
PCN I6AU & I6AT**



MRM 399.56
Cliff Ave Interchange

**229N-288
229S-288
PCN I6AW & I6AV**

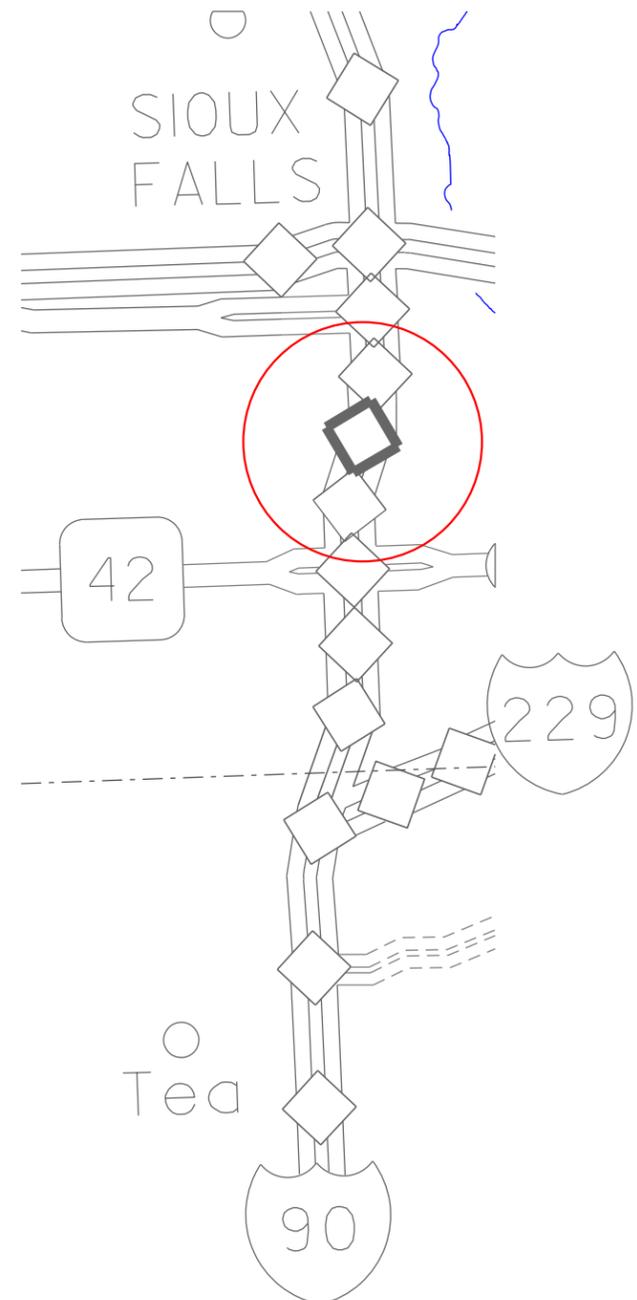


MRM 5.52, Structures over the
Big Sioux River

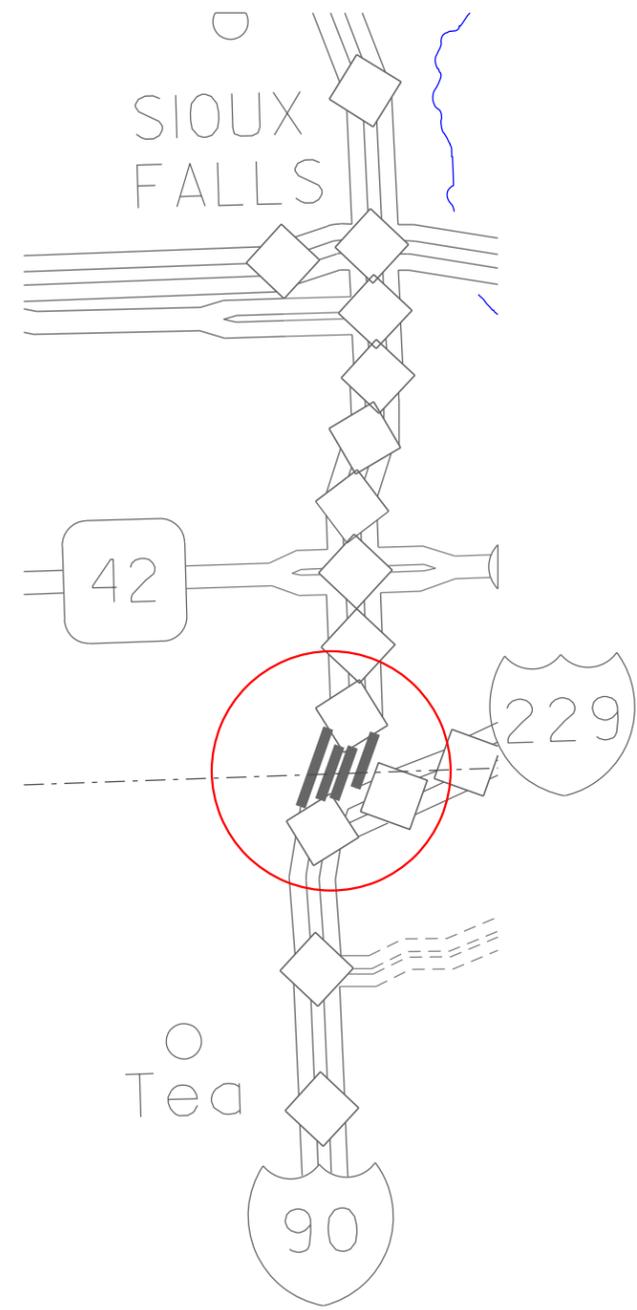
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2021 Region Bridge Seal	5	16

Plotting Date: 03/05/2021

**029N-288
PCN I6AR**



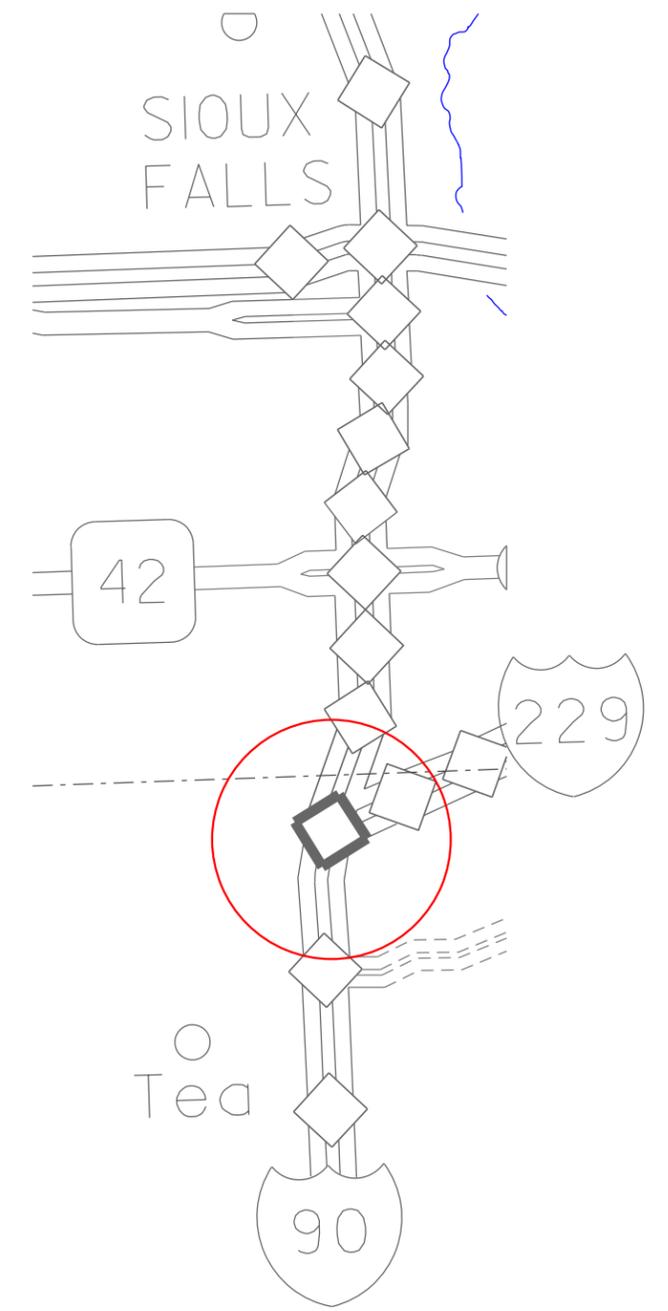
i-29 On Ramp A
0.1 miles east of the I-29/Russel St. Interchange



**029N-288
PCN I6AP**

Structure over I-29 at 57th St.

**029N-288
029S-288
PCN I6AN & I6AM**



MRM 75.50
I-29/I-229 Interchange

PLOT SCALE - 1:7000

PLOTTED FROM - TRM111119

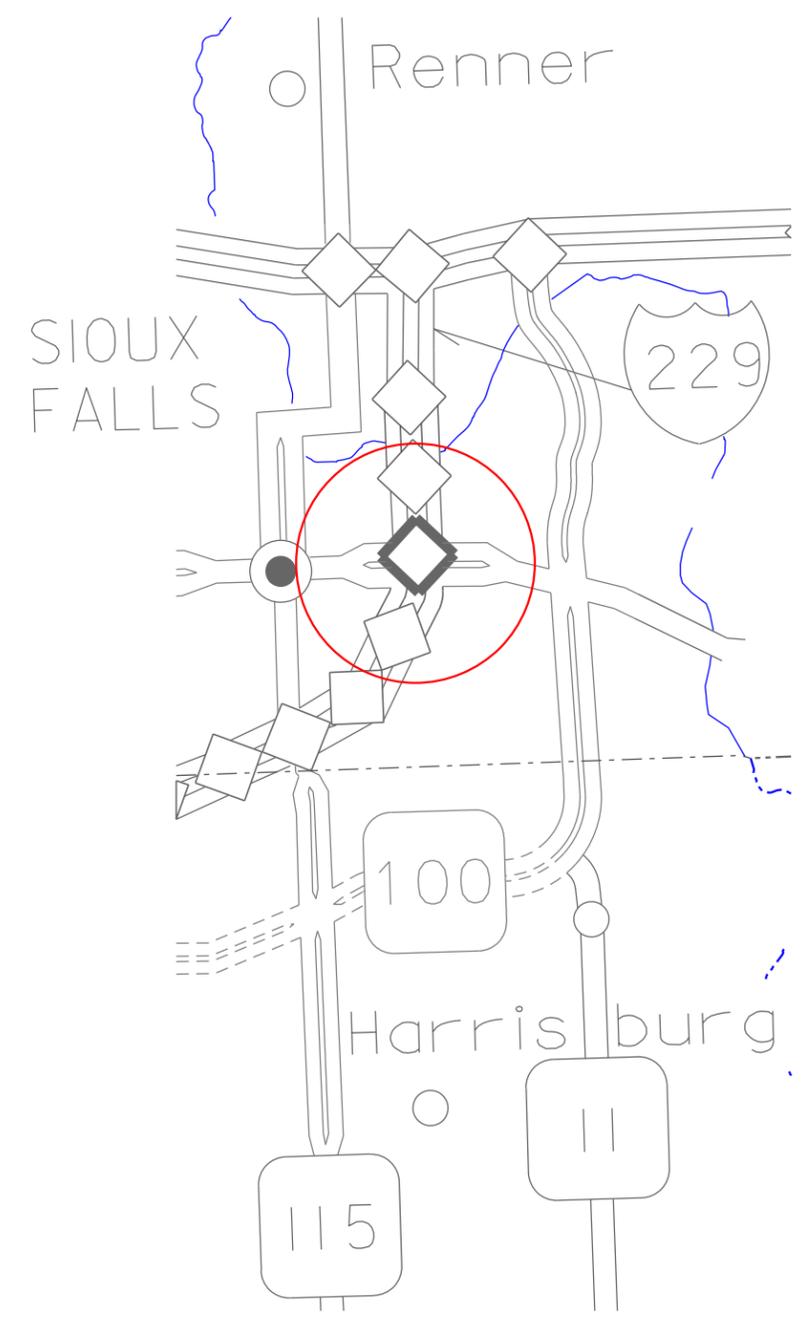
PLOT NAME - 5

FILE - ... \PRJ\SIILANE 2021\TITLE\I6AH.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2021 Region Bridge Seal	6	16

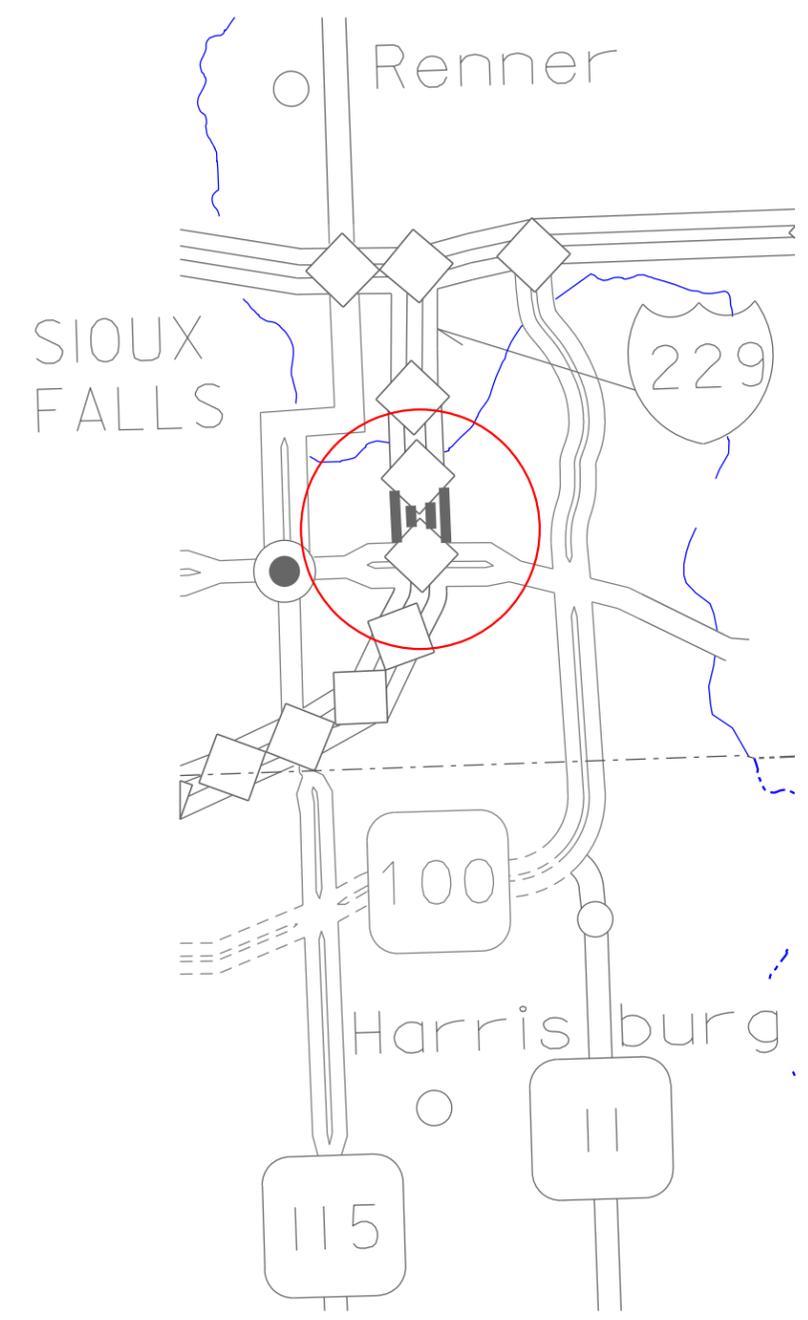
Plotting Date: 03/05/2021

229N-288 PCN I6AY



Structure over I-229 at 12th St.

229N-288 PCN I6AX



Structure over I-229 at 6th St.

PLOT SCALE - 1:7000

PLOTTED FROM - TRM111119

PLOT NAME - 6

FILE - ... \PRJ\SIILANE 2021\TITLE16AH.DGN

ESTIMATE OF QUANTITIES – I6AH

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,192.4	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6AJ

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	897.1	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6AK

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	769.3	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	228.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each

ESTIMATE OF QUANTITIES – I6AL

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	769.3	SqYd
634E0010	Flagging	10.0	Hour

ESTIMATE OF QUANTITIES – I6AM

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,891.6	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	204.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0420	Type C Advance Warning Arrow Board	2	Each

ESTIMATE OF QUANTITIES – I6AN

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,547.3	SqYd
634E0010	Flagging	10.0	Hour

ESTIMATE OF QUANTITIES – I6AP

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,318.5	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6AQ

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,453.1	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6AR

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	187.1	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6AT

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,662.2	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	172.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each

ESTIMATE OF QUANTITIES – I6AU

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,662.2	SqYd
634E0010	Flagging	10.0	Hour

ESTIMATE OF QUANTITIES – I6AV

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,446.7	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	172.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each

ESTIMATE OF QUANTITIES – I6AW

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,446.7	SqYd
634E0010	Flagging	10.0	Hour

ESTIMATE OF QUANTITIES – I6AX

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,094.9	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6AY

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	728.0	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – I6C0

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,328.4	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	228.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each

ESTIMATE OF QUANTITIES – I6C1

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,328.4	SqYd
634E0010	Flagging	10.0	Hour

ESTIMATE OF QUANTITIES – I6C2

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,569.8	SqYd
634E0010	Flagging	10.0	Hour
634E0110	Traffic Control Signs	228.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each

ESTIMATE OF QUANTITIES – I6C3

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,569.8	SqYd
634E0010	Flagging	10.0	Hour

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment shall be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: <http://sdleastwanted.com/maps/default.aspx>

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

MATERIALS

The acceptable sealers are listed on the approved products list for Bridge Deck Sealants on the SDDOT Website.

The Contractor shall furnish the Engineer the manufacturer's technical data sheets, materials safety data sheet (MSDS), and sufficient evidence that the material to be used has not exceeded the manufacturer's specified shelf life. This documentation shall be furnished to the Engineer a minimum of 5 days prior to application of the sealer.

CONSTRUCTION REQUIREMENTS

1. **Surface Protection and Preparation:** Concrete surfaces shall be swept such that all traces of laitance, dirt, dust, salt, and other foreign materials and deleterious substances are removed prior to application of the penetrating sealer. In the event that oil, grease, or other contaminants are inadvertently spilled on the concrete surface, detergent cleaning along with an abrasive blast cleaning will be required on the affected areas.

Other methods and equipment for surface preparation may be used if prior approval is obtained from the Engineer.

If necessary, solvents and hand tools shall be used to remove bonded materials detrimental to the treatment of the concrete surface.

The cleaning process shall not cause undue damage to the concrete surface, remove or alter the existing surface finish, or expose the coarse aggregate of the concrete. The method of cleaning shall be performed in such a manner as to provide a reasonably uniform appearing surface color and texture.

The sealer may be harmful to materials such as rubber, asphalt, and joint compounds; therefore, the Contractor shall be required to mask off all joints, strip seals, etc. prior to applying the sealer.

The Engineer shall approve the prepared surface prior to application of the penetrating sealer.

2. **Sealer Application:** The Contractor shall have a sufficient quantity of sealer on the project prior to the start of application such that the manufacturer's maximum rate of coverage (minimum ft²/gal) can be attained. Sealer application shall conform to the manufacturer's recommendations and the following:

3. **Weather Limitations:** The penetrating sealer shall only be applied when the ambient air and concrete surface temperatures are between 40° F and 100° F unless otherwise recommended by the manufacturer. The treatment solution shall not be sprayed when blowing winds or other conditions prevent proper application.

The sealer shall not be applied during inclement weather or rain, or if inclement weather or rain is anticipated within 24 hours.

CONSTRUCTION REQUIREMENTS (CONTINUED)

4. **Application Equipment:** Spray equipment for the application of the treatment solution shall be a low-pressure airless type sprayer with a maximum application pressure of 15 psi.

All surfaces shall be dry prior to application of the sealer. The concrete surfaces shall be allowed to dry a minimum of 3 days after precipitation. The Engineer will determine when the surface is sufficiently dry.

All loose dust and debris shall be blown off of the concrete surface with compressed air immediately prior to application of the sealer.

The sealer shall be used as supplied by the manufacturer and shall not be diluted or altered in any way.

The solution shall be sprayed on to the concrete surfaces at the manufacturer's recommended maximum rate of coverage (minimum ft²/gal) or to refusal, whichever is achieved first. Refusal is defined such that additional spray applications remain on the concrete surface and do not soak in, as determined by the Engineer.

5. **Traffic Limitations:** Traffic will not be permitted on treated surfaces until the solution has completely penetrated and the treated surface is dry. The Engineer will determine when the surface is sufficiently dry.

METHOD OF MEASUREMENT

Concrete Penetrating sealer will be measured to the nearest 0.1 square yard.

BASIS OF PAYMENT

Concrete Penetrating sealer will be paid for at the contract unit price per square yard. Payment will be full compensation for equipment, labor, materials, and all other incidental items required to prepare the concrete surfaces, and to furnish and apply the penetrating concrete sealer.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

GENERAL TRAFFIC CONTROL (CONTINUED)

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

No lane closures will be allowed during peak hours (7-9 am and 4-6 pm) on the structures over the Big Sioux River on 229, 229/29 Interchange on 29 and I90 over Cliff Ave/Hwy 115.

TRAFFIC CONTROL SIGNS

Sufficient traffic control devices have been included in these plans to sign one workspace on each route. If the Contractor elects to work on additional locations simultaneously, the cost for additional traffic control devices will be incidental to the various Traffic Control items.

PERMANENT PAVEMENT MARKING

The Contractor may be required to repaint all existing pavement markings including centerline, edge line, lane lines. This list is approximate. The Contractor will be required to document and be able to relocate for replacement the existing markings before they are obliterated. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

BRIDGE INFORMATION

PCN	HIGHWAY	BRIDGE #	MRM	WIDTH	LENGTH	DECK AREA
						SQ YD
I6AH	SD50	08-080-112	235.22	40	268.3	1192.44
I6AJ	SD50	08-145-124	241.61	32	252.3	897.07
I6AK	I90W	08-230-130	281.13	40	173.1	769.33
I6AL	I90E	08-230-131	281.13	40	173.1	769.33
I6AM	I29S	42-066-006	75.50	56	304	1891.56
I6AN	I29N	42-067-006	75.50	44	316.5	1547.33
I6AP	57th St	50-172-240	0.00	52	228.2	1318.49
I6AQ	SD115	50-175-020	107.54	52	251.5	1453.11
I6AR	W. Maple St.	50-179-191	0.00	40	42.1	187.11
I6AT	I90W	50-210-167	399.56	40	374	1662.22
I6AU	I90E	50-210-168	399.56	40	374	1662.22
I6AV	I229S	50-217-219	5.52	40	325.5	1446.67
I6AW	I229N	50-218-219	5.52	40	325.5	1446.67
I6AX	6th St	50-219-205	0.00	52	189.5	1094.89
I6AY	12th St	50-219-210	0.00	52	126	728.00
I6C0	SD34W	56-118-127	338.03	36	332.1	1328.40
I6C1	SD34E	56-118-128	338.03	36	332.1	1328.40
I6C2	SD37S	56-149-176	91.07	40	353.2	1569.78
I6C3	SD37N	56-150-176	91.07	40	353.2	1569.78
TOTAL						23862.8

16AH - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

16AP - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

16AJ - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

16AQ - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

16AK - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					228.0

16AR - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

16AM - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	1	36" x 48"	12.0	12.0
W1-4	REVERSE CURVE (L or R)	2	48" x 48"	16.0	32.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					204.0

16AT - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					172.0

I6AV - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					172.0

I6AX - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

I6AY - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					137.0

I6C0 - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 70	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					228.0

I6C2 - ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 70	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					228.0

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

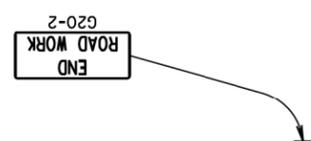
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

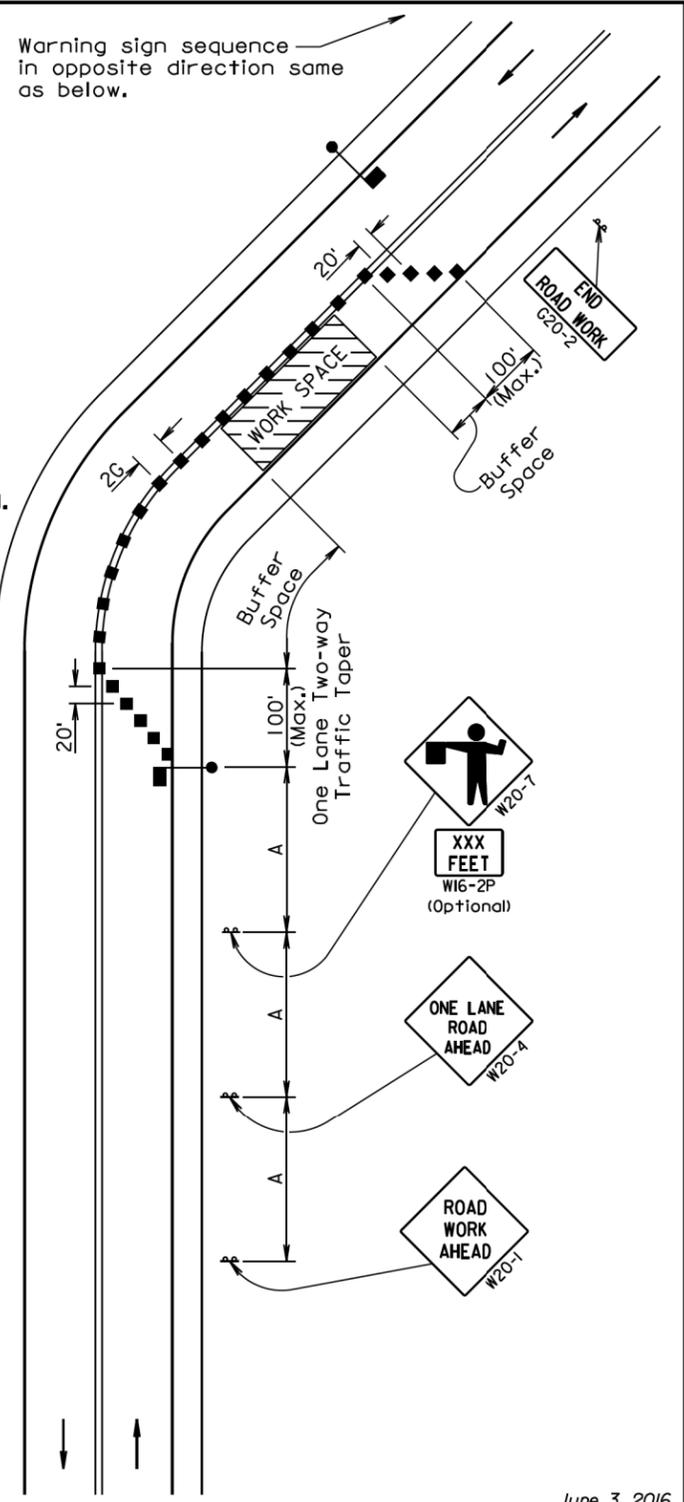
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	<i>Published Date: 1st Qtr. 2021</i>	Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

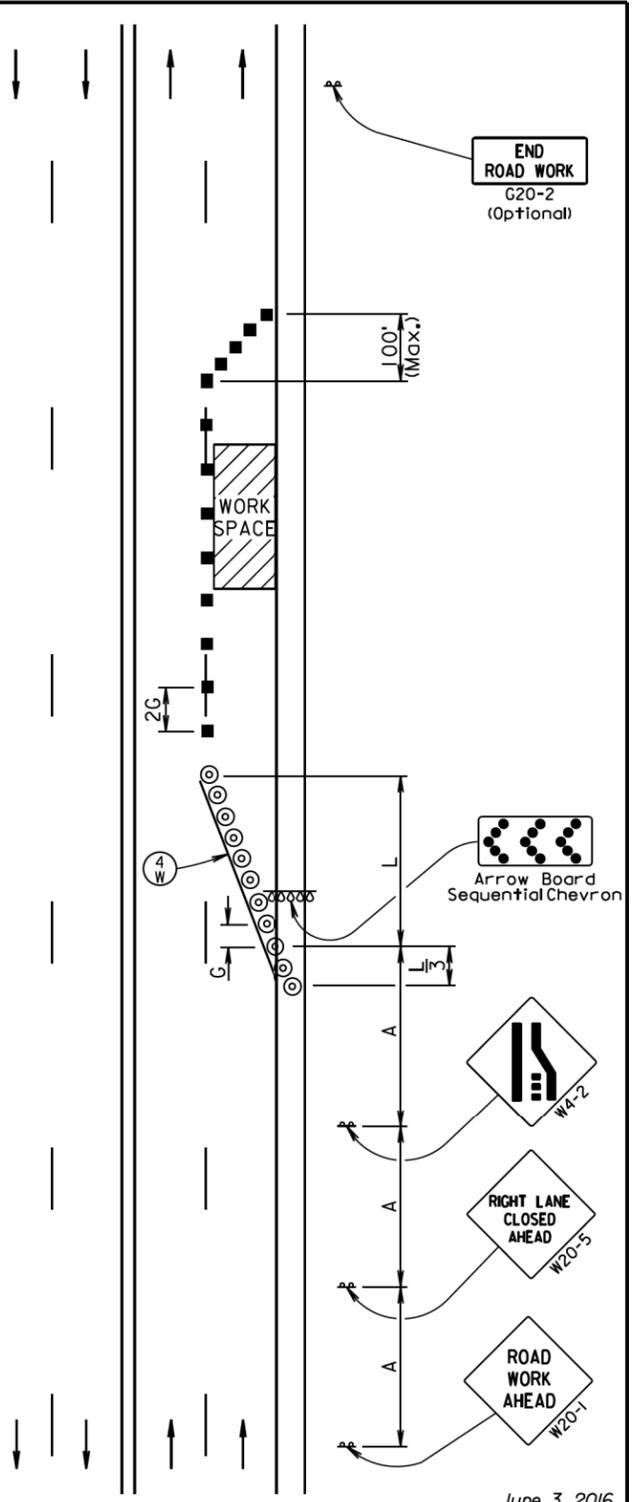
- ⊙ Reflectorized Drum
- Channelizing Device
- ④ 4" White Temporary Pavement Marking

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Temporary pavement markings shall be used if traffic control must remain overnight.

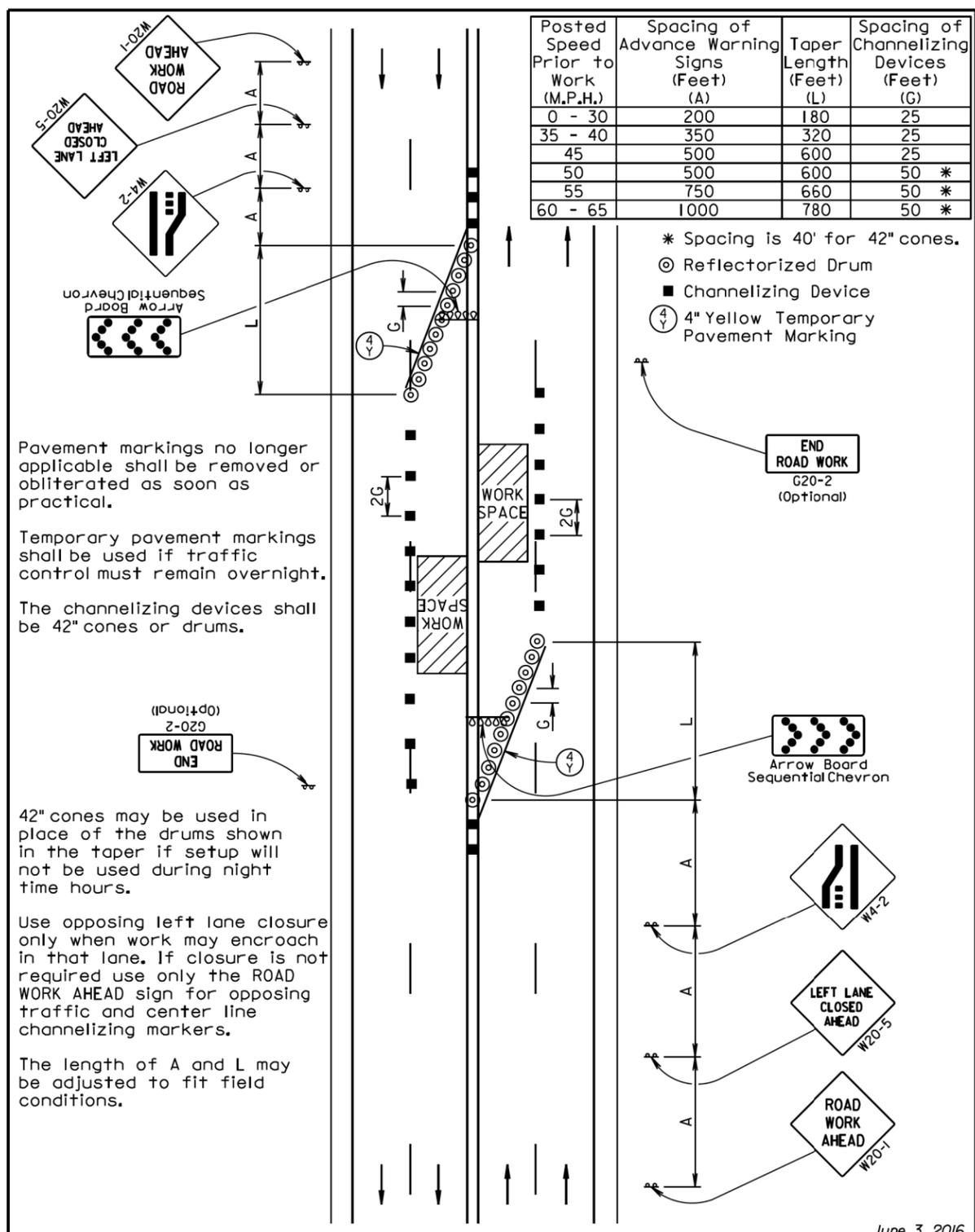
The length of A and L may be adjusted to fit field conditions.



June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47
	<i>Published Date: 1st Qtr. 2021</i>	Sheet 1 of 1

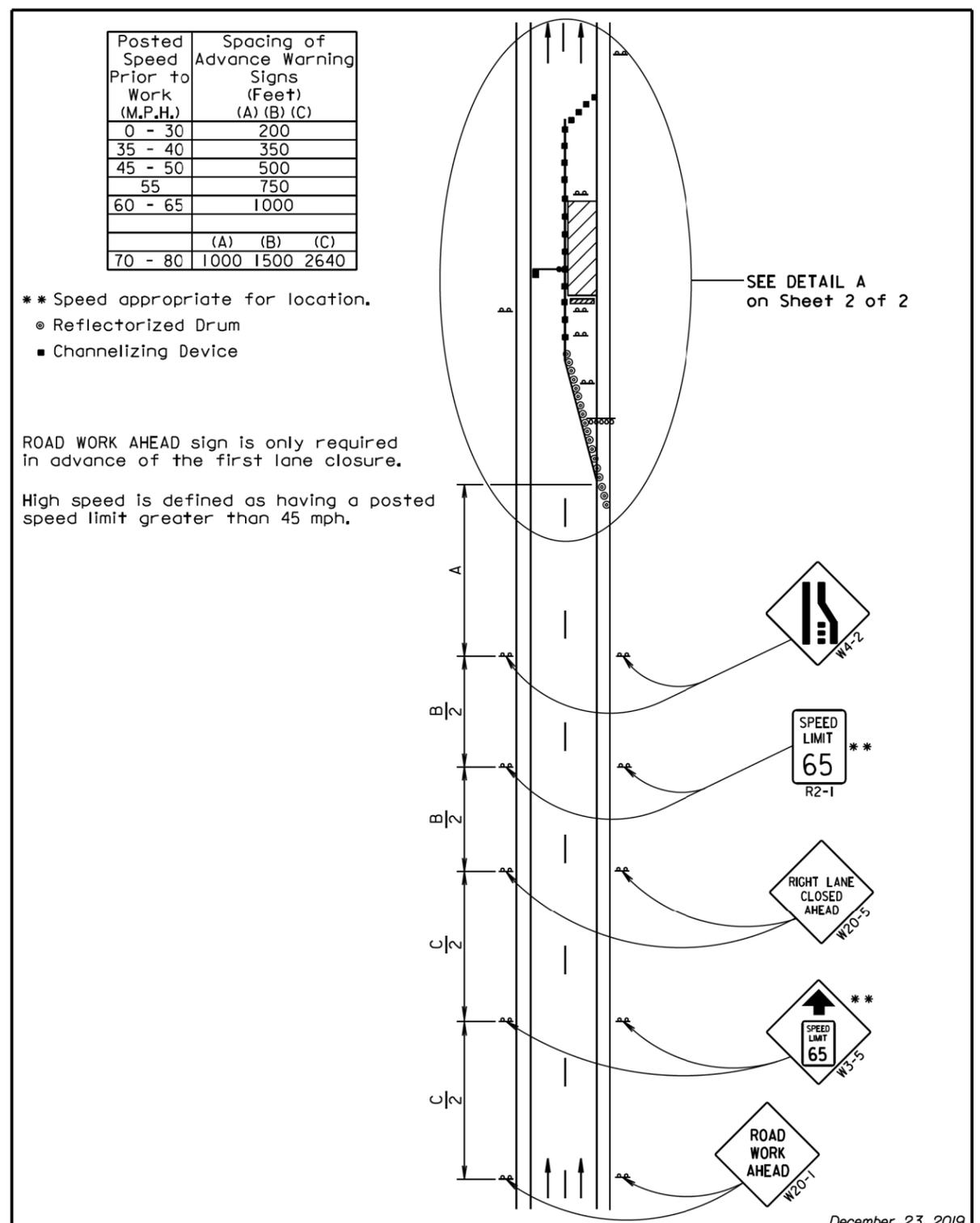
PLOT SCALE - 1:199,992



June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, LEFT LANE CLOSED	PLATE NUMBER 634.48
	Published Date: 1st Qtr. 2021	Sheet 1 of 1

PLOT NAME - 8



December 23, 2019

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 1st Qtr. 2021	Sheet 1 of 2

FILE - ... \PRUN\SILANE 2021\STD PLATES.DGN

Plotting Date: 03/05/2021

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

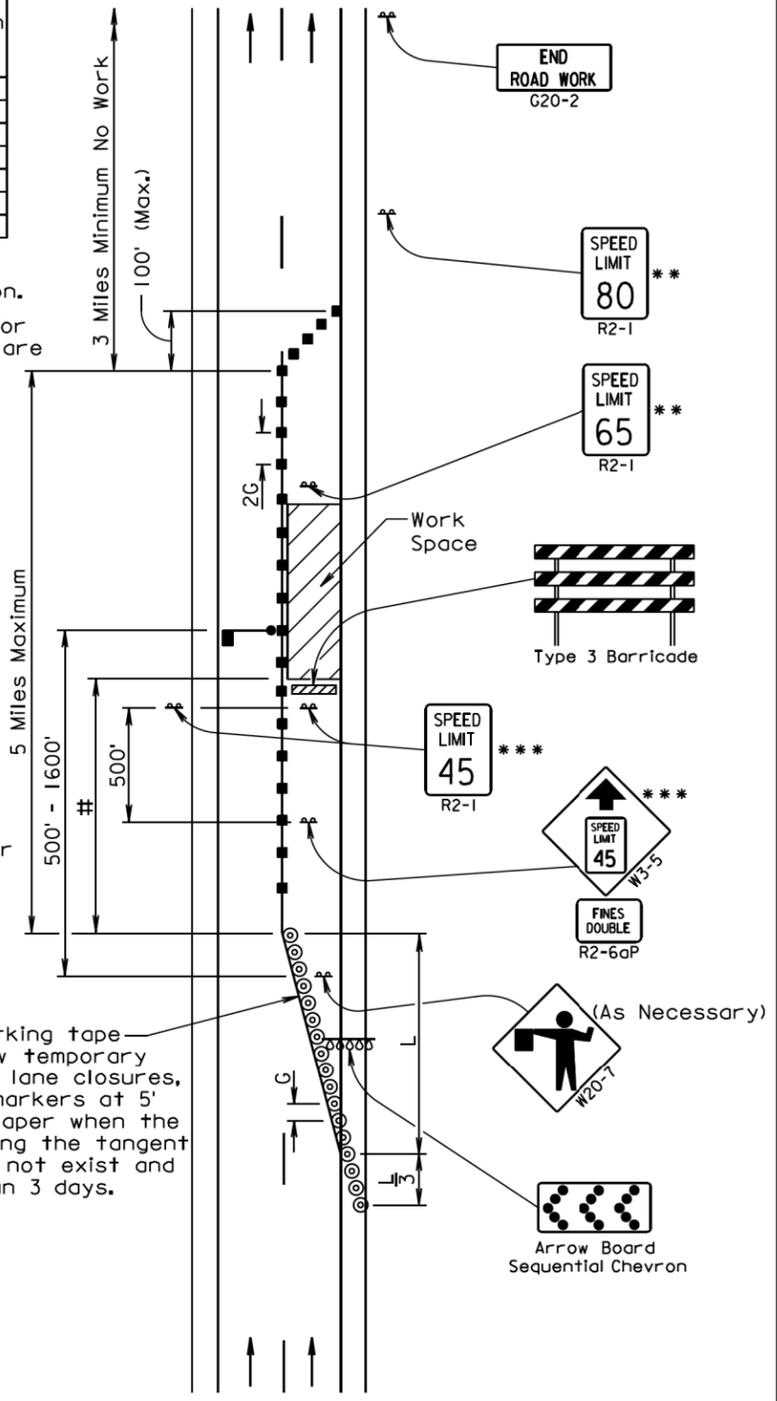
* Spacing is 40' for 42" cones.
 ** Speed appropriate for location.
 *** Use speed limit designated for the condition when workers are present in the work space. Signs will be covered or removed when workers are not present.

- Flagger (As Necessary)
- ⊙ Reflectorized Drum
- Channelizing Device
- # The Work Space will be a minimum of 500' from the end of the taper.

The FLAGGER sign will be used whenever there is a Flagger present.
 The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

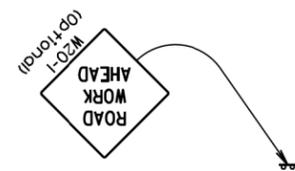
4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

December 23, 2019

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 1st Qtr. 2021	Sheet 2 of 2



Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

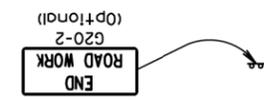
- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" White Temporary Pavement Marking

Temporary pavement markings will be used if traffic control must remain overnight.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs will be used.

The channelizing devices will be 42" cones or drums.

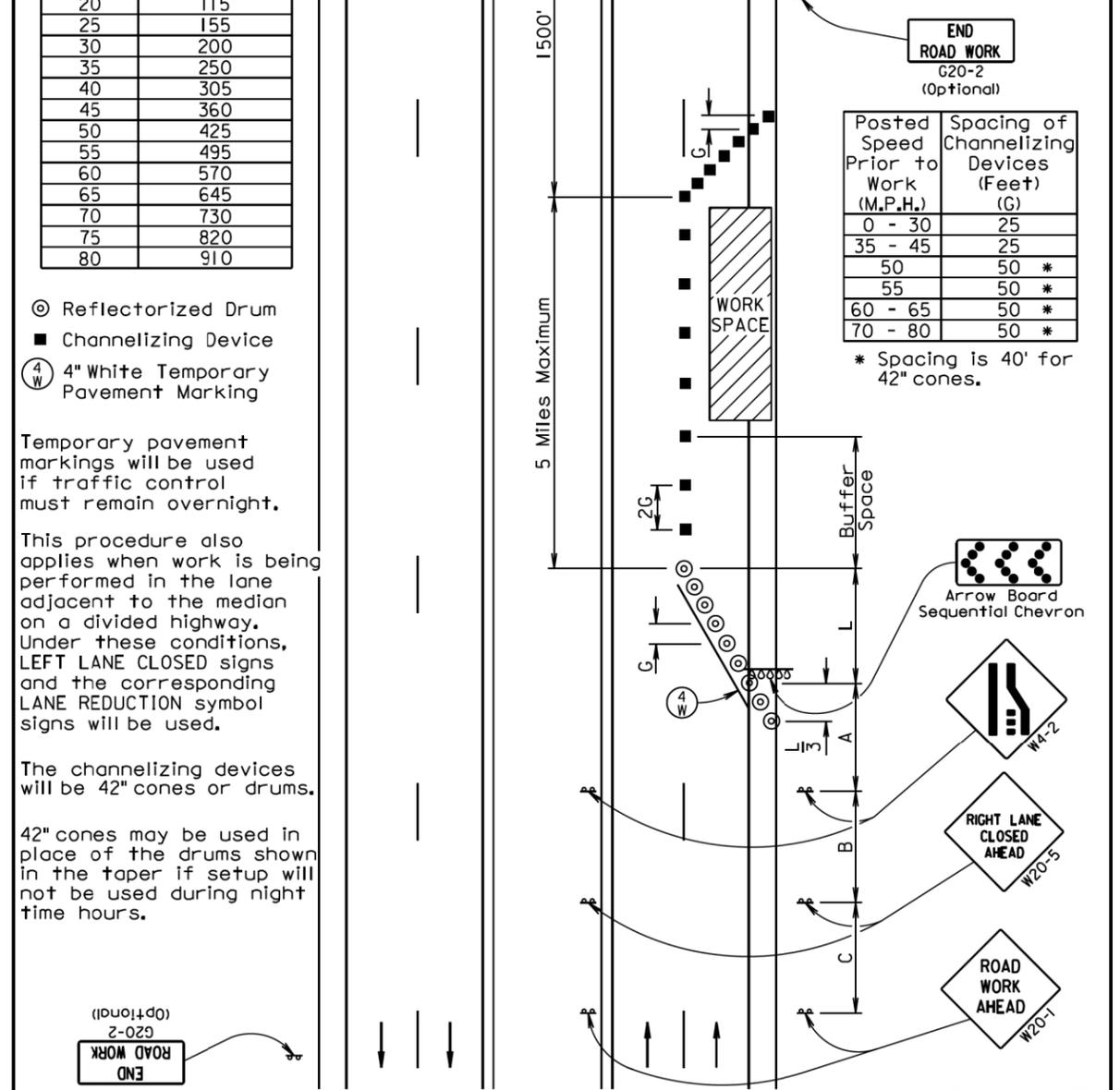
42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)
	(A)	(B)	(C)	
0 - 30	200			180
35 - 40	350			320
45 - 50	500			600
55	750			660
60 - 65	1000			780
	(A)	(B)	(C)	
70 - 80	1000	1500	2640	960

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 65	50 *
70 - 80	50 *

* Spacing is 40' for 42" cones.



September 14, 2018

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER	PLATE NUMBER 634.64
	Published Date: 1st Qtr. 2021	Sheet 1 of 1

PLOT SCALE - 1:199,992

PLOTTED FROM - TRM111119

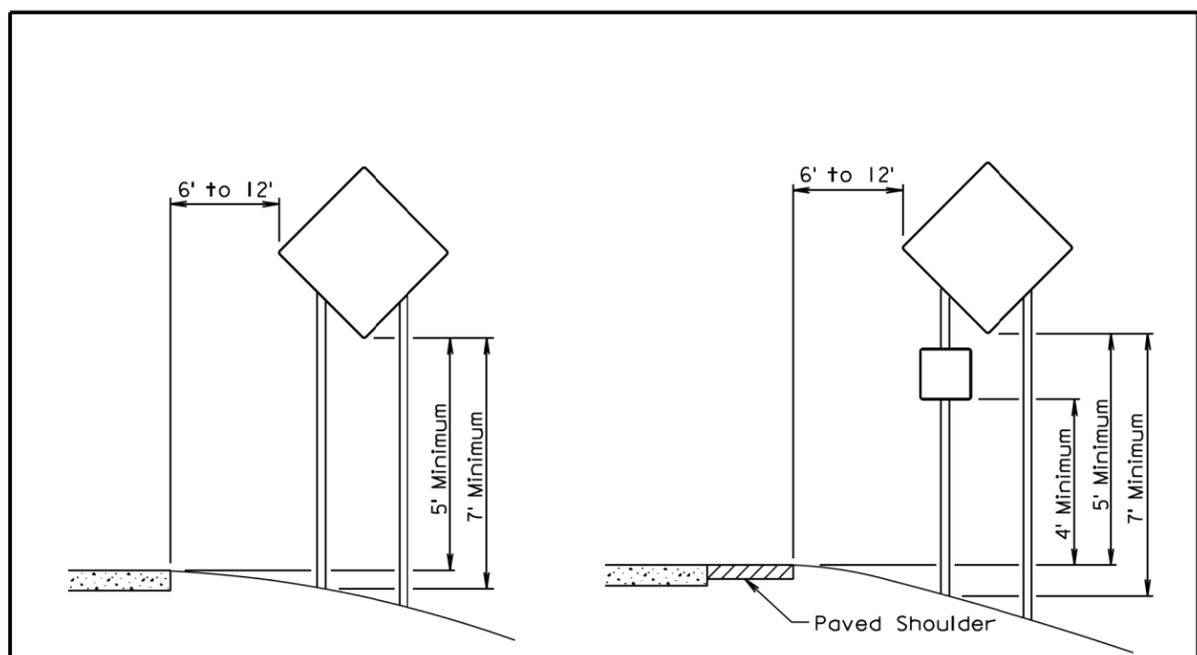
PLOT NAME - 9

FILE - ... \PBRUN\SILANE 2021\STD PLATES.DGN

PLOT SCALE - 1:199,992

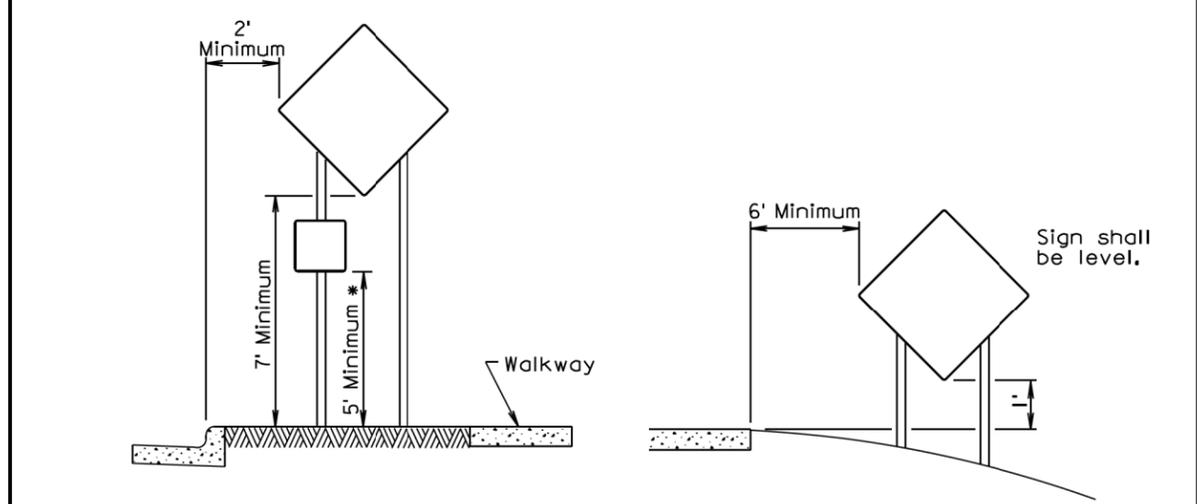
PLOT NAME - 10

FILE - ... \PRUNJILANE 2021 \STD PLATES.DGN



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

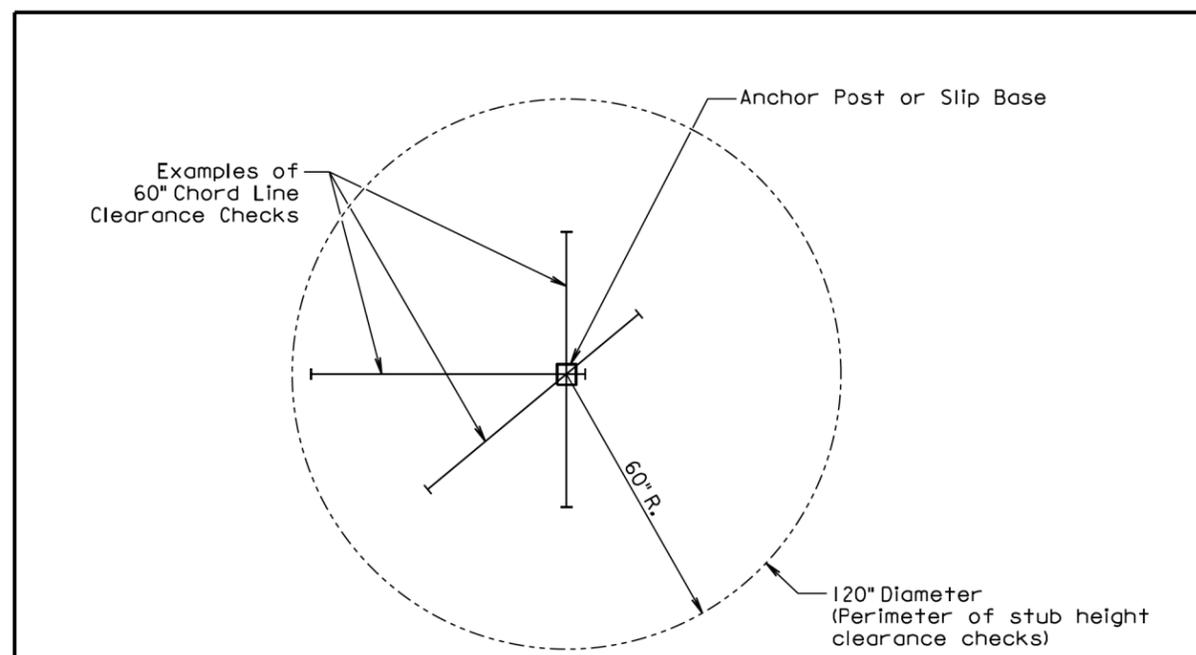
RURAL DISTRICT 3 DAY MAXIMUM

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

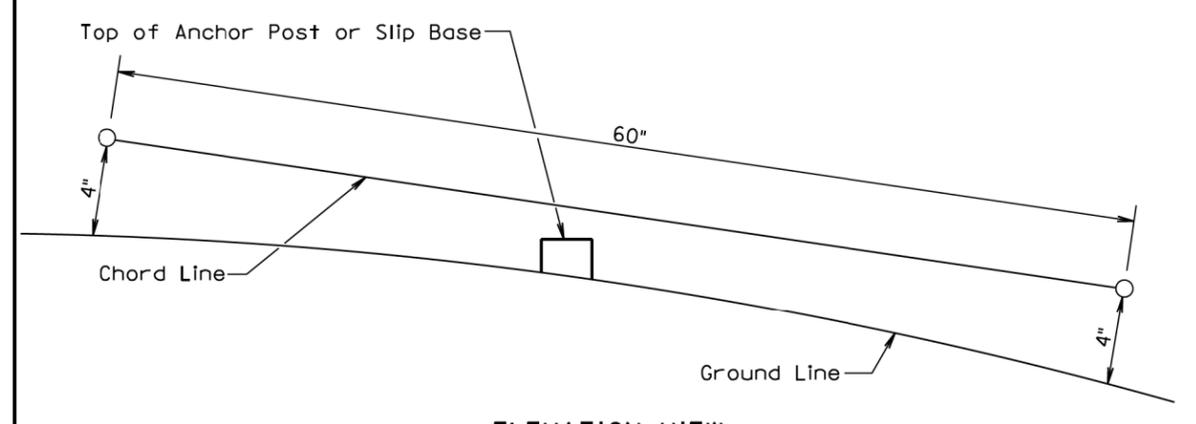
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 1st Qtr. 2021	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 1st Qtr. 2021	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1